

D. ACTUARIAL ANALYSIS OF BENEFIT DISBURSEMENTS FROM THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES

(Required by section 201(c) of the Social Security Act)

Effective January 1957, monthly benefits have been payable from the OASI Trust Fund to disabled children aged 18 and over of retired and deceased workers in those cases in which the disability began before age 22. Effective February 1968, reduced monthly benefits have been payable from this trust fund to disabled widows and widowers at ages 50 and above.

On December 31, 1982, about 533,000 persons were receiving monthly benefits from the OASI Trust Fund because of their disability or the disability of a child. This total includes 42,000 mothers and fathers (wives or husbands under age 65 of retired-worker beneficiaries and widows or widowers of deceased insured workers) who met all other qualifying requirements and were receiving unreduced benefits solely because they had a disabled-child beneficiary in their care. Also included, beginning in 1981, are mothers and fathers, as described above, who are eligible to receive benefits solely because they have a disabled child age 16 or 17 in their care. Benefits paid from this trust fund to the persons described above totaled \$1,566 million in calendar year 1982. Similar figures are presented in table 25 to show the experience in selected calendar years during 1960-82. Figures relating to past experience for years not shown are contained in prior annual reports.

TABLE 25.—BENEFITS PAYABLE FROM THE OASI TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES, SELECTED CALENDAR YEARS 1960-87
[Beneficiaries in thousands; benefit payments in millions]

Calendar year	Disabled beneficiaries, end of year			Amount of benefit payments ¹		
	Total	Children ²	Widows and widowers	Total	Children ²	Widows and widowers ²
Past experience:						
1960.....	117	117	—	\$59	\$59	—
1965.....	214	214	—	134	134	—
1970.....	316	281	36	301	260	\$41
1975.....	435	376	59	664	560	104
1976.....	457	395	62	748	637	111
1977.....	480	414	65	868	748	120
1978.....	494	430	64	950	823	127
1979.....	507	445	62	1,071	946	125
1980.....	519	460	59	1,223	1,097	126
1981.....	527	473	54	1,421	1,296	125
1982.....	533	484	49	1,566	1,451	115
Estimated future experience:³						
Alternative II-A:						
1983.....	545	500	45	1,749	1,643	106
1984.....	555	511	44	1,912	1,765	147
1985.....	565	523	42	2,058	1,911	147
1986.....	574	533	41	2,207	2,059	148
1987.....	585	545	40	2,350	2,199	151
Alternative II-B:						
1983.....	545	500	45	1,749	1,643	106
1984.....	555	511	44	1,921	1,773	148
1985.....	565	523	42	2,089	1,940	149
1986.....	574	533	41	2,267	2,114	153
1987.....	585	545	40	2,439	2,282	157

¹Beginning in 1966, includes payments for vocational rehabilitation services.

²Reflects the effect of including certain mothers and fathers. (See text.)

³In 1983 and prior years, reflects the offsetting effect of lower benefits payable to disabled widows and widowers who continue to receive benefits after attaining age 60 (62, for disabled widowers, prior to 1973) as compared to the higher nondisabled widow's (and widower's) benefits that would otherwise be payable.

⁴The estimates are based on alternatives II-A and II-B and reflect the assumed changes under the automatic increase provisions, as described in an earlier section.

Table 25 also shows the estimated future experience in calendar years 1983-87, under the alternative II-A and II-B assumptions described in an earlier section. Total benefit payments from the OASI Trust Fund with respect to disabled beneficiaries are estimated to increase from \$1,749 million in calendar year 1983 to \$2,350 million in calendar year 1987 under the alternative II-A assumptions, and to \$2,439 million in calendar year 1987 under the alternative II-B assumptions.

In calendar year 1982, benefit payments (including expenditures for vocational rehabilitation services) with respect to disabled persons from the OASI Trust Fund and from the DI Trust Fund (including payments from the latter fund to all children and spouses of disabled-worker beneficiaries) totaled \$18,904 million, of which \$1,566 million, or 8.3 percent, represented payments from the OASI Trust Fund. Similar figures for selected calendar years during 1960-82 and estimates for calendar years 1983-87, under alternatives II-A and II-B, are presented in table 26. Figures relating to past experience for years not shown in table 26 are contained in prior annual reports.

TABLE 26.—BENEFIT PAYMENTS UNDER THE OASDI PROGRAM WITH RESPECT TO DISABLED BENEFICIARIES, BY TRUST FUND, SELECTED CALENDAR YEARS 1960-87
(Amounts in millions)

Calendar year	Benefit payments ¹ from —			
	Total ¹	DI Trust Fund ²	OASI Trust Fund Amount ³	As a percentage of total benefit pay- ments with respect to disabled beneficiaries
Past experience:				
1960	\$627	\$568	\$59	9.4
1965	1,707	1,573	134	7.9
1970	3,386	3,085	301	8.9
1975	9,169	8,505	664	7.2
1976	10,803	10,055	748	6.9
1977	12,415	11,547	868	7.0
1978	13,549	12,599	950	7.0
1979	14,857	13,786	1,071	7.2
1980	16,738	15,515	1,223	7.3
1981	18,621	17,200	1,421	7.6
1982	18,904	17,338	1,566	8.3
Estimated future experience:⁴				
Alternative II-A:				
1983	18,835	17,086	1,749	9.3
1984	19,095	17,183	1,912	10.0
1985	19,692	17,634	2,058	10.5
1986	20,567	18,360	2,207	10.7
1987	21,449	19,099	2,350	11.0
Alternative II-B:				
1983	18,835	17,086	1,749	9.3
1984	19,112	17,191	1,921	10.1
1985	19,882	17,793	2,089	10.5
1986	20,994	18,727	2,267	10.8
1987	22,086	19,647	2,439	11.0

¹Beginning in 1966, includes payments for vocational rehabilitation services.

²Benefit payments to disabled workers and their children and spouses.

³Benefit payments to disabled children aged 18 and over, to certain mothers and fathers (see text), and to disabled widows and widowers (see footnote 3, table 25).

⁴The estimates are based on the alternative II-A and II-B assumptions and reflect the resulting assumed changes under the automatic increase provisions, as described in an earlier section.

E. ACTUARIAL STATUS OF THE TRUST FUNDS

Historically, the actuarial status of the OASDI program has been measured by the actuarial balance, as described earlier in this section. Recent annual reports have shown both medium-range and long-range actuarial balances, which have been computed, respectively, over the 25-year and 75-year periods beginning with the calendar year of issuance of the report. Accordingly, the medium-range and long-range actuarial balances shown in this report pertain to the periods 1983-2007 and 1983-2057, respectively. Also presented are actuarial balances for the second and third 25-year periods within the 75-year period.

As described earlier in this section, a single measure of the actuarial balance over a long period may not reveal problems which could occur during that period. Therefore, in addition to the medium-range and long-range actuarial balances, two other indicators of the financial condition of the trust funds are shown in this report. One is the series of annual balances (that is, the year-by-year differences between the projected total income rates and cost rates), and the other is the series of projected trust fund ratios (assets at the beginning of the year expressed as a percentage of outgo during the year). The significance of these indicators was discussed earlier.

The cost estimates are sensitive to changes in the underlying economic and demographic assumptions. The degree of sensitivity, however, varies considerably among the various assumptions. For example, variations in projected fertility rates have little effect on the medium-range cost estimates, because almost all of the projected covered workers and beneficiaries were born prior to the start of the projection period. However, variations in economic factors such as wage and price increases have significant effects on the estimates, even in the medium-range period. In general, the degree of confidence that can be placed in the assumptions and estimates is greater for the medium-range period than for the long-range period. Nonetheless, even for the medium-range period, the cost projections are only an indication of the trend and general range of future program costs. Appendix B contains a more detailed discussion of the effects on the cost estimates of varying two major economic assumptions.

Table 27 presents a comparison, on the basis of alternatives II-A and II-B, of the estimated cost rates and total income rates of the OASDI program. Under alternative II-A, the program is projected to have annual surpluses beginning in 1984 and continuing until about 2025, after which the program is projected to have annual deficits. These deficits are projected to grow steadily to a peak of 1.00 percent of taxable payroll in 2035 and then fluctuate between 0.9 and 1.2 percent during the remainder of the long-range projection period. This pattern of annual surpluses and deficits produces a medium-range actuarial surplus of 2.38 percent of taxable payroll and a long-range actuarial surplus of 0.84 percent.

Under alternative II-B, annual surpluses are also projected, beginning in 1984 and continuing until about 2020, after which deficits are projected for each year. These deficits grow more rapidly than those under alternative II-A, and temporarily peak around 2035 at 2.04 percent

of taxable payroll. Although the annual deficits in the remainder of the long-range period are significantly higher than those under alternative II-A, they follow a similar pattern, fluctuating between 2.0 and 2.3 percent of taxable payroll. This pattern of annual surpluses and deficits produces a medium-range actuarial surplus of 1.83 percent of taxable payroll and a long-range surplus of 0.02 percent.

TABLE 27.—COMPARISON OF ESTIMATED COST RATES AND INCOME RATES OF THE OASDI PROGRAM UNDER ALTERNATIVES II-A AND II-B, CALENDAR YEARS 1983-2060
[As a percentage of taxable payroll]

Calendar year	Cost rate			Income rate			Balance
	OASI	DI	Total	Payroll tax	Taxation of benefits	Total	
Alternative II-A:							
1983.....	10.28	1.21	11.49	10.80	0.44	11.24	-0.24
1984.....	10.24	1.13	11.37	11.40	.17	11.57	.19
1985.....	10.15	1.08	11.24	11.40	.18	11.58	.35
1986.....	10.16	1.05	11.20	11.40	.20	11.60	.40
1987.....	10.08	1.02	11.09	11.40	.22	11.62	.53
1988.....	9.98	.99	10.98	12.12	.24	12.36	1.38
1989.....	9.84	.97	10.81	12.12	.26	12.38	1.57
1990.....	9.74	.97	10.70	12.40	.29	12.69	1.99
1991.....	9.64	.96	10.60	12.40	.32	12.72	2.12
1992.....	9.55	.96	10.51	12.40	.35	12.75	2.24
1993.....	9.34	.95	10.29	12.40	.36	12.76	2.47
1994.....	9.18	.94	10.12	12.40	.36	12.76	2.64
1995.....	9.03	.93	9.96	12.40	.37	12.77	2.81
1996.....	8.87	.92	9.80	12.40	.36	12.76	2.97
1997.....	8.73	.92	9.64	12.40	.36	12.76	3.12
1998.....	8.60	.93	9.53	12.40	.36	12.76	3.23
1999.....	8.47	.95	9.42	12.40	.36	12.76	3.33
2000.....	8.35	.97	9.32	12.40	.35	12.75	3.43
2001.....	8.25	1.00	9.25	12.40	.35	12.75	3.50
2002.....	8.17	1.02	9.20	12.40	.36	12.76	3.56
2003.....	8.11	1.06	9.16	12.40	.36	12.76	3.59
2004.....	8.06	1.09	9.15	12.40	.36	12.76	3.61
2005.....	8.02	1.13	9.15	12.40	.36	12.76	3.61
2006.....	8.02	1.16	9.18	12.40	.36	12.76	3.58
2007.....	8.04	1.20	9.24	12.40	.37	12.77	3.53
2010.....	8.26	1.31	9.57	12.40	.39	12.79	3.22
2015.....	9.22	1.43	10.64	12.40	.45	12.85	2.21
2020.....	10.43	1.48	11.91	12.40	.52	12.92	1.01
2025.....	11.53	1.49	13.02	12.40	.58	12.98	-0.03
2030.....	12.26	1.45	13.71	12.40	.63	13.03	-0.67
2035.....	12.60	1.46	14.07	12.40	.67	13.07	-1.00
2040.....	12.55	1.50	14.05	12.40	.68	13.08	-0.96
2045.....	12.50	1.54	14.03	12.40	.70	13.10	-0.93
2050.....	12.59	1.54	14.13	12.40	.71	13.11	-1.02
2055.....	12.72	1.53	14.25	12.40	.71	13.11	-1.14
2060.....	12.78	1.52	14.30	12.40	.72	13.12	-1.18
25-year averages:							
1983-2007.....	9.08	1.02	10.10	12.15	.32	12.48	2.98
2008-2032.....	10.34	1.43	11.77	12.40	.51	12.91	1.15
2033-2057.....	12.59	1.51	14.10	12.40	.69	13.09	-1.01
75-year average:							
1983-2057.....	10.67	1.32	11.99	12.32	.51	12.83	.84

TABLE 27.—COMPARISON OF ESTIMATED COST RATES AND INCOME RATES OF THE OASDI PROGRAM UNDER ALTERNATIVES II-A AND II-B, CALENDAR YEARS 1983-2060 (Cont.)
[As a percentage of taxable payroll]

Calendar year	Cost rate			Income rate			
	OASI	DI	Total	Payroll tax	Taxation of benefits	Total	Balance
Alternative II-B:							
1983	10.28	1.21	11.49	10.80	10.44	11.24	-0.24
1984	10.30	1.14	11.44	11.40	.17	11.57	.12
1985	10.24	1.09	11.33	11.40	.18	11.58	.25
1986	10.34	1.07	11.40	11.40	.20	11.60	.20
1987	10.35	1.04	11.39	11.40	.23	11.63	.24
1988	10.35	1.02	11.37	12.12	.25	12.37	1.00
1989	10.29	1.01	11.30	12.12	.28	12.40	1.09
1990	10.26	1.01	11.27	12.40	.31	12.71	1.44
1991	10.18	1.00	11.19	12.40	.34	12.74	1.55
1992	10.10	1.00	11.10	12.40	.37	12.77	1.67
1993	9.94	.99	10.93	12.40	.38	12.78	1.85
1994	9.81	.98	10.79	12.40	.39	12.79	2.00
1995	9.68	.97	10.65	12.40	.39	12.79	2.14
1996	9.54	.97	10.51	12.40	.39	12.79	2.28
1997	9.40	.96	10.36	12.40	.39	12.79	2.42
1998	9.29	.98	10.27	12.40	.39	12.79	2.52
1999	9.17	1.00	10.17	12.40	.38	12.78	2.62
2000	9.06	1.02	10.08	12.40	.38	12.78	2.71
2001	8.96	1.05	10.01	12.40	.38	12.78	2.78
2002	8.88	1.07	9.95	12.40	.38	12.78	2.83
2003	8.81	1.11	9.92	12.40	.39	12.79	2.87
2004	8.75	1.14	9.90	12.40	.39	12.79	2.89
2005	8.72	1.18	9.90	12.40	.39	12.79	2.89
2006	8.71	1.22	9.93	12.40	.39	12.79	2.87
2007	8.73	1.26	9.98	12.40	.40	12.80	2.81
2010	8.95	1.37	10.31	12.40	.42	12.82	2.51
2015	9.93	1.49	11.43	12.40	.48	12.88	1.45
2020	11.21	1.55	12.76	12.40	.55	12.95	-.19
2025	12.40	1.56	13.96	12.40	.63	13.03	-.93
2030	13.22	1.51	14.73	12.40	.68	13.08	-1.65
2035	13.62	1.53	15.16	12.40	.72	13.12	-2.04
2040	13.60	1.57	15.17	12.40	.74	13.14	-2.03
2045	13.56	1.61	15.17	12.40	.76	13.16	-2.01
2050	13.66	1.61	15.27	12.40	.76	13.16	-2.11
2055	13.79	1.60	15.40	12.40	.77	13.17	-2.23
2060	13.85	1.59	15.44	12.40	.77	13.17	-2.27
25-year averages:							
1983-2007	9.61	1.06	10.66	12.15	.34	12.50	1.83
2008-2032	11.14	1.49	12.64	12.40	.55	12.95	.32
2033-2057	13.65	1.58	15.23	12.40	.75	13.15	-2.08
75-year average:							
1983-2057	11.46	1.38	12.84	12.32	.55	12.87	.02

*This figure represents the amount, expressed as a percentage of taxable payroll, transferred in 1983 from the general fund of the Treasury to the OASI and DI Trust Funds on account of military service wage credits attributable to service before 1957.

Note: The definitions of alternatives II-A and II-B, the income rates, cost rate, balance, and taxable payroll are presented in the text.

The estimated average long-range income rates under alternatives II-A and II-B are about 107 and 100.2 percent, respectively, of the estimated average long-range cost rates (of 11.99 and 12.84 percent of taxable payroll). Because the estimated average income rate under alternative II-B is between 95 and 105 percent of the estimated average cost rate, the program is in close actuarial balance. Under alternative II-A, the estimated average income rate exceeds 105 percent of the estimated average cost rate.

The estimated cost rates increase rapidly after the medium-range period primarily because the number of beneficiaries is projected to increase at a faster rate than the number of covered workers. This occurs because the relatively large number of persons born during the period of high fertility rates from the end of World War II through the early 1960's will reach retirement age, and begin to receive benefits, while the

relatively small number of persons born during the subsequent periods of low fertility rates will comprise the labor force. During the last years of the projection period, the cost rates generally stabilize at a fairly high level, which reflects the stabilization in the projected ratio of the number of beneficiaries to the number of covered workers. Such stabilization results from the relatively smooth pattern of the assumed fertility rates. A comparison of the numbers of beneficiaries and covered workers, both historically and as projected under all four alternatives, is shown in table 28.

TABLE 28.—COMPARISON OF OASDI BENEFICIARIES AND COVERED WORKERS BY ALTERNATIVE, CALENDAR YEARS 1945-2060

Calendar year	Covered workers ¹ (in thousands)	Beneficiaries ² (in thousands)			Covered workers per OASDI beneficiary	Beneficiaries per 100 covered workers
		OASI	DI	Total		
1945	46,390	1,106	—	1,106	41.9	2
1950	48,280	2,930	—	2,930	16.5	6
1955	65,200	7,563	—	7,563	8.6	12
1960	72,530	13,740	522	14,262	5.1	20
1965	80,680	18,509	1,648	20,157	4.0	25
1970	93,090	22,618	2,568	25,186	3.7	27
1975	100,200	26,998	4,125	31,123	3.2	31
1980	*114,300	30,385	4,734	35,119	*3.3	*31
1981	*115,800	31,074	4,636	35,710	*3.2	*31
1982	*115,000	31,207	4,184	35,391	*3.2	*31
Alternative I:						
1983	115,539	31,856	3,928	35,784	3.2	31
1985	125,507	33,142	3,754	36,896	3.4	29
1990	137,696	36,230	3,743	39,973	3.4	29
1995	146,036	38,072	3,705	41,777	3.5	29
2000	154,315	38,908	4,149	43,057	3.6	28
2005	160,921	40,048	5,371	45,419	3.5	28
2010	165,218	42,894	5,725	48,619	3.4	29
2015	167,644	48,249	6,148	54,397	3.1	32
2020	169,618	54,424	6,370	60,794	2.8	36
2025	172,610	60,163	6,595	66,758	2.6	39
2030	176,631	64,127	6,551	70,678	2.5	40
2035	181,355	66,101	6,473	72,574	2.5	40
2040	186,302	65,996	6,656	72,652	2.6	39
2045	191,560	65,985	6,939	72,924	2.6	38
2050	197,336	66,886	7,100	73,986	2.7	37
2055	203,619	68,383	7,291	75,674	2.7	37
2060	210,141	69,970	7,437	77,407	2.7	37
Alternative II-A:						
1983	115,432	31,882	3,929	35,811	3.2	31
1985	124,555	33,222	3,773	36,995	3.4	30
1990	136,513	36,572	3,883	40,455	3.4	30
1995	143,175	38,930	4,008	42,938	3.3	30
2000	150,835	40,153	4,559	44,712	3.4	30
2005	156,696	41,636	5,884	47,520	3.3	30
2010	159,744	44,803	6,305	51,108	3.1	32
2015	160,464	50,527	6,743	57,270	2.8	36
2020	160,290	57,154	6,960	64,114	2.5	40
2025	160,457	63,471	7,132	70,603	2.3	44
2030	161,109	68,101	7,020	75,121	2.1	47
2035	162,035	70,763	6,879	77,642	2.1	48
2040	162,827	71,211	6,996	78,207	2.1	48
2045	163,588	71,608	7,173	78,781	2.1	48
2050	164,505	72,588	7,172	79,760	2.1	48
2055	165,679	73,653	7,191	80,844	2.0	49
2060	166,967	74,402	7,173	81,575	2.0	49
Alternative II-B:						
1983	115,220	31,882	3,929	35,811	3.2	31
1985	123,865	33,222	3,773	36,995	3.3	30
1990	134,485	36,571	3,881	40,452	3.3	30
1995	141,308	38,927	4,006	42,933	3.3	30
2000	147,917	40,144	4,555	44,699	3.3	31
2005	153,326	41,620	5,878	47,498	3.2	31
2010	156,199	44,770	6,297	51,067	2.7	36
2015	156,831	50,483	6,741	57,224	2.7	33
2020	156,612	57,093	6,947	64,040	2.4	41
2025	156,727	63,395	7,117	70,512	2.2	45
2030	157,341	68,024	7,003	75,027	2.1	48
2035	158,234	70,671	6,862	77,533	2.0	49
2040	159,006	71,130	6,980	78,110	2.0	49
2045	159,717	71,527	7,156	78,683	2.0	49
2050	160,588	72,508	7,153	79,661	2.0	50

TABLE 28.—COMPARISON OF OASDI BENEFICIARIES AND COVERED WORKERS BY ALTERNATIVE, CALENDAR YEARS 1945-2060 (Cont.)

Calendar year	Covered workers ¹ (in thousands)	Beneficiaries ² (in thousands)			Covered workers per OASDI beneficiary	Beneficiaries per 100 covered workers
		OASI	DI	Total		
Alternative II-B: (Cont.)						
2055.....	161,715	73,560	7,174	80,734	2.0	50
2060.....	162,960	74,308	7,155	81,463	2.0	51
Alternative III:						
1983.....	114,572	31,902	3,931	35,833	3.2	31
1985.....	121,246	33,290	3,786	37,076	3.3	31
1990.....	132,156	36,889	4,002	40,890	3.2	31
1995.....	138,070	39,722	4,284	44,006	3.1	32
2000.....	144,472	41,362	4,917	46,279	3.1	32
2005.....	149,250	43,288	6,307	49,595	3.0	33
2010.....	150,780	46,972	6,757	53,729	2.8	36
2015.....	149,298	53,372	7,195	60,567	2.5	41
2020.....	146,368	60,856	7,358	68,214	2.1	47
2025.....	143,071	68,254	7,455	75,709	1.9	53
2030.....	139,717	74,205	7,258	81,463	1.7	58
2035.....	136,256	78,287	7,027	85,314	1.6	63
2040.....	132,420	80,120	7,029	87,149	1.5	66
2045.....	128,340	81,721	7,026	88,747	1.4	69
2050.....	124,299	83,419	6,779	90,198	1.4	73
2055.....	120,549	84,379	6,558	90,937	1.3	75
2060.....	117,067	84,334	6,313	90,647	1.3	77

¹Workers who pay Social Security taxes at some time during the year.

²Beneficiaries with monthly benefits in current-payment status as of June 30.

*Preliminary.

Note: The definitions of alternatives I, II-A, II-B, and III are presented in the text. The numbers of beneficiaries do not include certain noninsured persons, most of whom attained age 72 before 1968 and have less than 3 quarters of coverage, and for whom the costs are reimbursed by the general fund of the Treasury. The number of such noninsured persons was 68,923 as of June 30, 1982, and is estimated to be less than 500 by the turn of the century.

Table 28 shows that, even under alternative I, which includes high fertility rates and little mortality improvement, the number of covered workers per beneficiary declines from the current level of 3.2 to an ultimate level of about 2.7. Under alternative III, which includes low fertility rates and substantial mortality improvement, the decline is far more dramatic, reaching 1.3 workers per beneficiary. Under alternatives II-A and II-B, the ratio declines to 2.0 workers per beneficiary. The impact of these changes on OASDI financing can be readily assessed by looking at the projected number of beneficiaries per hundred workers. Under alternatives I, II-A, II-B, and III, this rises by the end of the long-range period to levels of 37, 49, 50, and about 76, respectively. These levels are, respectively, 19, 58, 61, and about 145 percent higher than the current level of 31 beneficiaries per 100 covered workers.

The implication of this demographic shift is a significantly higher cost rate during the last third of the long-range period than during the first two-thirds. Under all but the most optimistic of the four alternative sets of assumptions used in this report, the OASDI program is estimated to have substantial annual deficits during the last 25 years, although these deficits are not so large that they exceed the accumulated surpluses of earlier years (as discussed later). Eventually, however, either the costs would need to be reduced or the income would need to be raised in order to maintain actuarial balance.

Table 29 shows the OASDI cost rates on the basis of the four alternatives. Under alternatives I and II-A, the cost rates generally decline slowly for the next 20 years. Under alternative II-B, the cost rates follow a similar pattern, except that the steady decline begins after

1986. Under alternative III, the cost rates fluctuate for about a decade before following a similar downward pattern. During the last few years of the medium-range period, the cost rates begin to rise slightly under all four alternatives.

After the medium-range period, under each alternative, the cost rates increase rapidly (because of the demographic shift discussed earlier). Under alternative I, the cost rates peak around 2030 after which they decrease slightly to the end of the projection period. Under alternatives II-A and II-B, they are fairly constant in 2035-45 before increasing thereafter through the end of the projection period. Under alternative III, the cost rates continuously increase through the end of the long-range projection period.

The OASDI cost rates under alternatives I and III differ by about 15 percentage points at the end of the long-range period, although by only 3.46 percentage points at the end of the medium-range period. The average long-range cost rate for the OASDI program varies from 9.81 percent under alternative I to 16.56 percent under alternative III, while the average medium-range cost rate varies much less—from 9.22 to 11.44 percent.

TABLE 29.—ESTIMATED COST RATES OF THE OASDI PROGRAM BY ALTERNATIVE, CALENDAR YEARS 1983-2060
[As a percentage of taxable payroll]

Calendar year	Cost rate by alternative			
	I	II-A	II-B	III
1983	11.46	11.49	11.49	11.62
1984	11.28	11.37	11.44	11.75
1985	11.01	11.24	11.33	11.43
1986	10.87	11.20	11.40	11.18
1987	10.68	11.09	11.39	11.30
1988	10.50	10.98	11.37	11.34
1989	10.15	10.81	11.30	11.34
1990	10.15	10.70	11.27	11.38
1991	9.82	10.60	11.19	11.93
1992	9.72	10.51	11.10	11.90
1993	9.25	10.29	10.93	11.79
1994	9.03	10.12	10.79	11.72
1995	8.84	9.96	10.65	11.65
1996	8.66	9.80	10.51	11.54
1997	8.49	9.64	10.36	11.45
1998	8.37	9.53	10.27	11.38
1999	8.25	9.42	10.17	11.31
2000	8.14	9.32	10.08	11.25
2001	8.06	9.25	10.01	11.21
2002	7.99	9.20	9.95	11.20
2003	7.95	9.16	9.92	11.19
2004	7.92	9.15	9.90	11.21
2005	7.91	9.15	9.90	11.25
2006	7.93	9.18	9.93	11.32
2007	7.97	9.24	9.98	11.43
2010	8.22	9.57	10.31	11.93
2015	9.07	10.64	11.43	13.48
2020	10.02	11.91	12.76	15.43
2025	10.73	13.02	13.96	17.44
2030	11.00	13.71	14.73	19.17
2035	10.94	14.07	15.16	20.65
2040	10.80	14.05	15.17	21.71
2045	10.30	14.03	15.17	22.74
2050	10.16	14.13	15.27	23.82
2055	10.10	14.25	15.40	24.78
2060	10.03	14.30	15.44	25.46

TABLE 29.—ESTIMATED COST RATES OF THE OASDI PROGRAM BY ALTERNATIVE, CALENDAR YEARS 1983-2060 (Cont.)
[As a percentage of taxable payroll]

Calendar year	Cost rate by alternative			
	I	II-A	II-B	III
25-year averages:				
1983-2007.....	9.22	10.10	10.66	11.44
2008-2032.....	9.80	11.77	12.64	15.50
2033-2057.....	10.42	14.10	15.23	22.73
75-year average:				
1983-2057.....	9.81	11.99	12.84	16.56

Note: The definitions of alternatives I, II-A, II-B, and III, cost rate and taxable payroll are presented in the text.

Future OASDI costs may not necessarily fall within the range defined by the results under alternatives I and III. Nonetheless, because alternatives I and III define a reasonably wide range of economic and demographic conditions, the resulting cost estimates delineate a reasonable range of possibilities for future program costs.

Table 30 shows a comparison of the OASDI cost as a percentage of Gross National Product (GNP) on the basis of the four alternatives. There are various similarities between the patterns of these cost percentages and the cost rates shown in the previous table. Under all four alternatives, the percentages generally decline slowly to 2005, after which they begin to rise. Shortly after the medium-range period, under each alternative, the percentages increase rapidly (because of the demographic shift discussed earlier) and peak around 2030 under alternative I and 2035 under alternatives II-A and II-B, while continuing to increase through the end of the long-range projection period under alternative III.

Another similarity is that the costs as percentages of GNP projected under the four alternatives differ by a relatively large amount at the end of the long-range period (about 4.3 percentage points), although differing by a much smaller amount at the end of the medium-range period (1.21 percentage points). In addition, the average long-range cost as a percentage of GNP projected under the various alternatives varies by a relatively large amount (from 4.27 percent under alternative I to 6.38 percent under alternative III), while the average medium-range cost varies by a much smaller amount (from 4.07 to 4.90 percent).

TABLE 30.—ESTIMATED COST OF THE OASDI PROGRAM AS A PERCENTAGE OF GNP BY ALTERNATIVE, CALENDAR YEARS 1983-2060

Calendar year	I	II-A	II-B	III
1983.....	5.18	5.19	5.19	5.28
1984.....	5.00	5.05	5.08	5.21
1985.....	4.86	4.95	5.00	5.00
1986.....	4.80	4.92	5.01	4.84
1987.....	4.72	4.87	5.00	4.90
1988.....	4.63	4.81	4.99	4.92
1989.....	4.44	4.74	4.96	4.92
1990.....	4.47	4.68	4.92	4.92
1991.....	4.30	4.64	4.88	5.15
1992.....	4.29	4.60	4.84	5.13
1993.....	4.08	4.49	4.75	5.07
1994.....	3.99	4.42	4.69	5.03
1995.....	3.90	4.34	4.62	4.99
1996.....	3.82	4.27	4.55	4.93
1997.....	3.75	4.20	4.48	4.87
1998.....	3.70	4.15	4.43	4.83
1999.....	3.64	4.10	4.38	4.79
2000.....	3.60	4.05	4.33	4.75
2001.....	3.56	4.02	4.29	4.72
2002.....	3.53	3.99	4.26	4.70
2003.....	3.51	3.97	4.24	4.69

TABLE 30.—ESTIMATED COST OF THE OASDI PROGRAM AS A PERCENTAGE OF GNP BY ALTERNATIVE, CALENDAR YEARS 1983-2060 (Cont.)

Calendar year	I	II-A	II-B	III
2004.....	3.50	3.96	4.22	4.68
2005.....	3.49	3.95	4.21	4.68
2006.....	3.50	3.96	4.22	4.70
2007.....	3.52	3.98	4.23	4.73
2010.....	3.62	4.11	4.34	4.89
2015.....	3.98	4.53	4.74	5.42
2020.....	4.38	5.02	5.22	6.09
2025.....	4.66	5.43	5.63	6.75
2030.....	4.76	5.67	5.86	7.29
2035.....	4.71	5.76	5.94	7.70
2040.....	4.54	5.70	5.87	7.94
2045.....	4.40	5.64	5.78	8.17
2050.....	4.31	5.63	5.74	8.39
2055.....	4.27	5.62	5.71	8.57
2060.....	4.22	5.59	5.64	8.64
25-year averages:				
1983-2007.....	4.07	4.41	4.63	4.90
2008-2032.....	4.28	4.95	5.16	6.09
2033-2057.....	4.45	5.67	5.81	8.15
75-year average:				
1983-2057.....	4.27	5.01	5.20	6.38

Note: The definitions of alternatives I, II-A, II-B, and III are presented in the text.

Table 31 shows a comparison of the estimated average cost rates and the estimated average total income rates, by trust fund. In the medium range, actuarial surpluses are projected for both the OASI and DI programs under all four alternatives; the combined OASDI medium-range actuarial surplus ranges from 1.08 percent of taxable payroll under alternative III to 3.23 percent under alternative I.

In the long range, a large deficit is projected for the OASI program under alternative III, an insignificant deficit under alternative II-B, and surpluses under alternatives I and II-A. For the DI program, a deficit is projected under alternative III and surpluses under the other three alternatives. The combined OASDI long-range actuarial balance ranges from a surplus of 2.92 percent of taxable payroll under alternative I to a deficit of 3.51 percent under alternative III.

TABLE 31.—COMPARISON OF ESTIMATED AVERAGE COST RATE WITH ESTIMATED AVERAGE TOTAL INCOME RATE BY ALTERNATIVE AND TRUST FUND
(As a percentage of taxable payroll)

Calendar years	Average cost rate			Average total income rate			Balance		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
Alternative I:									
1983-2007.....	8.31	0.91	9.22	11.19	1.26	12.45	+2.88	+0.35	+3.23
2008-2032.....	8.65	1.16	9.80	11.36	1.47	12.83	+2.71	+31	+3.03
2033-2037.....	9.25	1.17	10.42	11.44	1.48	12.91	+2.19	+30	+2.49
1983-2057.....	8.73	1.08	9.81	11.33	1.40	12.73	+2.59	+32	+2.92
Alternative II-A:									
1983-2007.....	9.08	1.02	10.10	11.21	1.26	12.48	+2.14	+24	+2.38
2008-2032.....	10.34	1.43	11.77	11.43	1.48	12.91	+1.10	+05	+1.15
2033-2057.....	12.59	1.51	14.10	11.60	1.49	13.09	-.99	-.02	-1.01
1983-2057.....	10.67	1.32	11.99	11.42	1.41	12.83	+75	+09	+84
Alternative II-B:									
1983-2007.....	9.61	1.06	10.66	11.23	1.26	12.50	+1.63	+20	+1.83
2008-2032.....	11.14	1.49	12.64	11.47	1.48	12.95	+33	-.01	+32
2033-2057.....	13.65	1.58	15.23	11.65	1.50	13.15	-1.99	-.09	-2.08
1983-2057.....	11.46	1.36	12.84	11.45	1.41	12.87	-.01	+04	+02

TABLE 31.—COMPARISON OF ESTIMATED AVERAGE COST RATE WITH ESTIMATED AVERAGE TOTAL INCOME RATE BY ALTERNATIVE AND TRUST FUND (Cont.)
[As a percentage of taxable payroll]

Calendar years	Average cost rate			Average total income rate			Balance		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
Alternative III:									
1983-2007.....	10.28	1.16	11.44	11.26	1.27	12.53	+.98	+.11	+1.08
2008-2032.....	13.68	1.81	15.50	11.58	1.50	13.08	-2.10	-.32	-2.42
2033-2057.....	20.68	2.05	22.73	12.00	1.52	13.52	-8.67	-.53	-9.21
1983-2057.....	14.88	1.68	16.56	11.61	1.43	13.04	-3.27	-.25	-3.51

Note: The definitions of alternatives I, II-A, II-B, and III, cost rate, total income rate, balance, and taxable payroll are presented in the text. Totals do not necessarily equal the sum of rounded components.

Table 32 shows the trust fund ratios for the OASI and DI programs under all four alternatives. The OASI and DI ratios are projected to be at fairly low levels for several years before increasing to very high levels thereafter. Under alternative I, they increase throughout the long-range projection period to extremely high levels around 2,000 percent. By contrast, under alternative III, the OASI ratio, after peaking around 260 percent, decreases rapidly until the fund is exhausted in 2028. Similarly, the DI ratio, after peaking at 220 percent, decreases rapidly until the fund is exhausted in 2021.

TABLE 32.—ESTIMATED TRUST FUND RATIOS BY ALTERNATIVE AND TRUST FUND, CALENDAR YEARS 1983-2060

Calendar year	Alternative I			Alternative II-A			Alternative II-B			Alternative III		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
1983.....	15	15	15	15	15	15	15	15	15	15	15	15
1984.....	21	38	22	20	38	22	20	38	22	19	37	21
1985.....	22	35	23	21	33	22	20	32	21	17	29	18
1986.....	26	35	27	24	31	25	22	29	23	18	25	19
1987.....	29	40	29	25	32	25	23	28	23	21	24	21
1988.....	37	50	38	26	36	27	23	30	24	18	24	19
1989.....	53	94	57	39	48	40	28	38	29	26	30	27
1990.....	73	113	77	51	84	54	35	69	38	34	56	36
1991.....	99	152	104	69	109	72	47	89	51	42	70	45
1992.....	126	188	131	88	135	92	59	111	64	48	83	51
1993.....	162	237	169	110	165	115	75	136	80	56	97	60
1994.....	201	287	209	135	195	140	91	161	98	64	111	68
1995.....	244	340	253	161	226	168	110	186	117	73	124	78
1996.....	290	394	300	191	258	197	130	213	137	83	136	88
1997.....	340	450	350	222	291	229	152	240	160	93	149	99
1998.....	393	495	402	256	317	262	175	262	183	105	158	110
1999.....	448	535	457	291	340	296	200	280	208	118	164	123
2000.....	506	574	513	329	360	332	227	297	234	132	169	136
2001.....	564	631	571	366	397	370	253	329	261	145	187	149
2002.....	624	683	630	405	429	408	281	357	289	158	202	163
2003.....	685	725	689	445	454	446	309	379	317	172	212	177
2004.....	746	761	748	485	475	484	338	396	345	187	218	190
2005.....	807	792	805	525	491	521	367	409	372	201	220	203
2006.....	867	819	861	565	503	557	397	419	399	215	220	216
2007.....	925	842	915	603	512	591	425	425	425	229	217	227
2010.....	1,079	897	1,055	704	526	680	501	431	491	260	193	251
2015.....	1,227	983	1,195	792	532	757	563	421	544	263	127	245
2020.....	1,286	1,088	1,262	800	535	767	556	405	538	204	38	184
2025.....	1,316	1,216	1,305	766	544	741	507	390	494	99	(¹)	81
2030.....	1,363	1,400	1,366	723	577	708	442	393	437	(¹)	(¹)	(¹)
2035.....	1,448	1,542	1,458	684	595	675	372	388	374	(¹)	(¹)	(¹)
2040.....	1,594	1,652	1,601	662	596	655	308	369	314	(¹)	(¹)	(¹)
2045.....	1,761	1,743	1,759	642	587	636	245	339	255	(¹)	(¹)	(¹)
2050.....	1,913	1,853	1,906	615	585	611	178	311	192	(¹)	(¹)	(¹)
2055.....	2,050	1,965	2,040	580	585	580	106	284	125	(¹)	(¹)	(¹)
2060.....	2,193	2,086	2,180	544	590	549	31	260	54	(¹)	(¹)	(¹)

TABLE 32.—ESTIMATED TRUST FUND RATIOS BY ALTERNATIVE AND TRUST FUND, CALENDAR YEARS 1983-2060 (Cont.)

Calendar year	Alternative I			Alternative II-A			Alternative II-B			Alternative III		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
Trust fund is projected to be first exhausted in:.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	2028	2021	2027

*The fund is projected to be exhausted and not to recover before the end of the projection period.

*The fund is not projected to be exhausted within the projection period.

Note: The definitions of alternatives I, II-A, II-B, and III, and trust fund ratio are presented in the text. The OASDI ratios shown after the year a given fund is projected to be exhausted are theoretical and are shown for informational purposes only.

The actuarial balances shown in this report are substantially improved from those in last year's report. Table 33 itemizes the reasons for the differences—together with their estimated cost effects—between the estimates under alternative II-B in last year's report and those in this report.

TABLE 33.—CHANGE IN ESTIMATED MEDIUM-RANGE AND LONG-RANGE ACTUARIAL BALANCE UNDER ALTERNATIVE II-B BY TRUST FUND AND REASON FOR CHANGE [As a percentage of taxable payroll]

Item	Medium range			Long range		
	OASI	DI	Total	OASI	DI	Total
Shown in last year's report: ¹						
Average tax rate	9.93	2.07	12.01	10.11	2.16	12.27
Average cost rate	10.14	1.23	11.37	12.59	1.50	14.09
Actuarial balance	-.21	+.85	+.64	-2.48	+.66	-1.82
Changes in actuarial balance due to changes in: ²						
June 1982 benefit increase below estimate	+0.01	+0.00	+0.01	+0.00	+0.00	+0.00
Public Law 97-248 (TEFRA)	+0.00	+0.00	+0.01	+0.01	+0.00	+0.01
Valuation date	+0.08	+0.01	+0.09	-.05	+0.00	-.05
Demographic assumptions	+0.07	+0.02	+0.09	-.15	-.01	-.16
Preliminary economic assumptions	-.20	-.02	-.22	-.09	-.01	-.10
Disability assumptions	+0.00	+0.11	+0.11	+0.00	+0.20	+0.20
Withdrawal assumptions	-.13	-.01	-.14	-.12	-.01	-.13
All other factors	-.04	+0.01	-.03	-.04	+0.00	-.04
Public Law 98-21 (the 1983 amendments) ...	+2.03	-.77	+1.26	+2.89	-.80	+2.09
Final economic assumptions	+0.02	+0.01	+0.02	+0.02	+0.01	+0.02
Total change in actuarial balance	+1.83	-.64	+1.19	+2.46	-.63	+1.84
Shown in this report: ³						
Actuarial balance	+1.63	+0.20	+1.83	-.01	+0.04	+0.02
Average cost rate	9.61	1.06	10.66	11.46	1.38	12.84
Average total income rate	11.23	1.26	12.50	11.45	1.41	12.87

¹Cost rates and taxable payroll are calculated on the basis of the 1982 alternative II-B, which assumes ultimate annual increases of 5.5 percent in average wages in covered employment and 4 percent in the CPI, an ultimate annual unemployment rate of 5 percent, and an ultimate total fertility rate of 2.1 children per woman. The averages are computed over projection periods commencing with 1982. The average tax rate represents both the average payroll tax rate and the average total income rate because there was no tax concept other than the payroll tax prior to the 1983 amendments.

²See the text for a discussion of the items shown.

³Cost rates, total income rates, and taxable payroll are calculated on the basis of the 1983 alternative II-B, which is described in the text. The averages are computed over projection periods commencing with 1983.

Note: The definitions of cost rate, total income rate, taxable payroll, actuarial balance, and projection period are presented in the text. Totals do not necessarily equal the sum of rounded components.

The estimates shown in last year's report assumed an automatic benefit increase for June 1982 of 7.6 percent. When the CPI for March 1982 was announced about a month after the 1982 report was issued, the actual increase was calculated to be 7.4 percent.

The enactment of Public Law 97-248, the provisions of which are described in an earlier section, results in a minor change in the taxable payroll and, therefore, in the cost rates.

During the legislative development of the Social Security Amendments of 1983, revised estimates of the operations of the OASDI program were prepared for use by the Congress in the legislative decision-making process. The following five changes were made at that time and, except as noted, form the basis for the estimates in this report.

In changing from the valuation periods of last year's report, which were 1982-2006 and 1982-2056 for the medium-range and long-range periods, respectively, to the valuation periods of this report, 1983-2007 and 1983-2057, the year 1982 is replaced by 2007 in the medium range and by 2057 in the long range. In the medium-range period, the OASDI estimated balance in the replacement year is higher than that in the year being replaced, thereby increasing the actuarial balance. In the long-range period, the opposite situation exists.

The ultimate total fertility rate was lowered from 2.1 to 2.0 to reflect the continuing low level of fertility in the United States. This change results in a significant decrease in the long-range actuarial balance but has no significant effect on the medium-range actuarial balance. The demographic assumptions for this year's report also include the results of the 1980 Census, which were not available in time for the 1982 report. The 1980 Census shows a significantly larger population, and in particular, a larger working population, for 1980 than had been estimated before the census. This change results in a significant increase in both the medium-range and long-range actuarial balances. However, in the long range, because of the large opposite effect of the change in the fertility assumption, the net effect of the changes in the demographic assumptions is to lower the actuarial balance.

The ultimate economic assumptions in alternative II-B are the same as in last year's report with the exception of the unemployment rate which was changed from 5.0 to 5.5 percent. However, the economic assumptions in the short-range period were revised to reflect the depth and duration of the 1981-82 recession, the rise in unemployment, and the significant drop in inflation. This results in a moderate decrease in the medium-range actuarial balance and a smaller decrease in the long-range actuarial balance. After the enactment of the 1983 amendments, these short range assumptions were revised slightly, as described later.

Changes in the assumed disability incidence and termination rates were made to reflect more recent experience. These changes result in increases in both the medium-range and long-range actuarial balances.

The estimates in last year's report reflect an implicit assumption that no State and local government entities would withdraw from the OASDI system. Prior to the enactment of the 1983 amendments, which prohibit such withdrawal (as described earlier), the cost estimates were revised to reflect an explicit assumption regarding the cost effect of such withdrawals.

Numerous minor changes have been made in other factors and in the methods used to project the OASDI cost rates. The net effect of these changes is a minor decrease in the OASI actuarial balances and a minor increase in the DI actuarial balances.

The enactment of the Social Security Amendments of 1983 has resulted in major increases in the actuarial balances of the OASDI system. The provisions of this law are discussed in significant detail earlier in this report.

After the enactment of the Social Security Amendments of 1983, the short-range economic assumptions were changed to reflect the significant turn-around in economic activity which began early this year and which was not anticipated in the preliminary economic assumptions that were made last fall.

VIII. CONCLUSION

The Social Security Amendments of 1983 have restored the financial soundness of the OASDI program for many years into the future. This is the case in the short range, on the basis of all four alternative sets of assumptions shown in this report, and in the long range, on the basis of all but the most pessimistic of the four sets.

The short-range projections shown in this report are in marked contrast to those shown in the last three annual reports, all of which indicated that the assets of the OASI Trust Fund would soon become insufficient to permit the timely payment of benefits. As discussed in earlier sections of this report, the assets of the OASI Trust Fund were sufficient to permit benefits to be paid on time through June 1983 only because of temporary legislative changes, including the interfund borrowing authority under which loans were made from the DI and HI Trust Funds to the OASI Trust Fund in the latter part of 1982. On the basis of the economic and demographic assumptions presented in this report, the 1983 amendments would enable OASI and DI benefits to be paid on time in the short range and for many years thereafter.

The long-range projections shown in this report are in marked contrast to those of the last decade, which indicated substantial deficits over the 75-year projection period. On the basis of the intermediate alternative II-B assumptions, the program is currently in long-range actuarial balance. This actuarial balance consists of average surpluses of 1.83 and 0.32 percent of taxable payroll over the first and second 25-year subperiods, respectively, and an average deficit of 2.08 percent over the third 25-year subperiod of the 75-year projection period. Thus, the actuarial balance is a moving average, and continuing review of the financing of the OASDI program is necessary.

While the OASDI program is expected to be able to pay benefits on time for many years into the future, the trust-fund levels are estimated to be relatively low through 1987. If economic conditions in 1984-87 are worse than those assumed under the pessimistic alternative III assumptions, the OASDI program could again experience financial difficulties in the near future. After 1987, the program's ability to withstand economic downturns is projected to steadily improve.

The assets of the OASI Trust Fund are estimated to increase enough to allow for the complete repayment, before 1989, of the \$12.4 billion borrowed from the HI Trust Fund and, before 1990, of the \$5.1 billion borrowed from the DI Trust Fund. The repayments to the HI Trust Fund are expected to be completed before the projected depletion of that fund in the late 1980's or early 1990's. As shown in the concurrent annual report for the HI Trust Fund, prompt repayment will be essential considering that fund's impending depletion. Repayment to the DI Trust Fund is assumed to occur slightly later, because for DI such repayment is not expected to be necessary to meet ongoing benefit payments.